

### SUPPORT FOR THE AMENDMENTS

Claims 13-15 have been amended to recite that the polynucleotide encodes a protein which has the activity of the RodA cell division protein. These amendments are supported by the specification. Claims 5, 6, 21, 22, 39, and 44 have been amended to correct typographical errors. Accordingly, no new matter is believed to have been added to this application by these amendments.

### REMARKS

Claims 1, 3-17, 19-26, and 38-49 remain pending. Favorable reconsideration is respectfully requested.

The rejections of the claims under 35 U.S.C. §112, first paragraph, set forth at paragraphs 3 and 4 of the Official Action dated October 2, 2002, are believed to be obviated by the amendments submitted above.

At the outset, Applicants note that all of the pending claims are listed as being rejected. However, the arguments set forth in the Official Action only refer to the claims which are directed to a polynucleotide which is at least 70%, 80%, or 90% identical to SEQ ID NO: 1, i.e., Claims 13-15. See the first sentence of the third paragraph under numbered paragraph (3) at page 2 of the Official Action dated October 2, 2002. Since no basis for rejection was set forth for Claims 1, 3-12, 16, 17, 19-26, and 38-49, Applicants presume that those claims are allowable.

Claims 13-15 read as follows:

13. An isolated polynucleotide, which is at least 70% identical to the polynucleotide of Claim 11 and encodes a protein which has the activity of the RodA cell division protein.

14. An isolated polynucleotide, which is at least 80% identical to the polynucleotide of Claim 11 and encodes a protein which has the activity of the RodA cell division protein.

15. An isolated polynucleotide, which is at least 90% identical to the polynucleotide of Claim 11 and encodes a protein which has the activity of the RodA cell division protein.

Thus, these claims are directed to polynucleotides which (1) are at least 70%, 80%, or 90% identical to SEQ ID NO: 1 and (2) encode a protein having the activity of the RodA cell division protein

The present invention describes SEQ ID NO: 1. It is certainly well-within the purview of one skilled in the art to construct a polynucleotide which is at least 70%, 80%, or 90% identical to SEQ ID NO: 1. The present specification also describes a method of screening for polynucleotides which encode a protein having the activity of the RodA cell division protein. See Claim 9 at pages 30-31 of the present application.

Certainly, no evidence has been provided to demonstrate that one skilled in the art cannot produce polynucleotides which are at least 70%, 80%, or 90% identical to SEQ ID NO: 1 and encode a protein which has the activity of the RodA cell division protein, using the detailed procedures set forth in the present specification. Applicants acknowledge that, in general, the rules of protein folding are not complete. However, considering that the present specification teaches (a) SEQ ID NO: 1 and (b) screening for polynucleotides which encode a protein having the activity of the RodA cell division protein, one skilled in the art can readily prepare a polynucleotide which is at least 70%, 80%, or 90% identical to SEQ ID NO: 1 and determine whether that polynucleotide encodes a protein having the activity of the RodA cell division protein. Thus, the amount of experimentation is not undue. Since the amount of experimentation is not undue, the claims are enabled.

Regarding written description, Applicants direct the Office's attention to Example 14 of the "Synopsis of Application of Written Description Guidelines" (hereinafter referred to as "the Guidelines"), a copy of which is attached hereto. In this Example, the hypothetical claim reads as follows:

A protein having SEQ ID NO: 3 and variants thereof  
that are at least 95% identical to SEQ ID NO: 3 and catalyze  
the reaction of A → B.

As stated at the end of the Example (see page 55 of the submission attached hereto), the written description requirement was satisfied. Significantly, the Example notes that the variants of SEQ ID NO: 3 do not have substantial variation, since all of the variants have the specified catalytic activity and sequence identity with respect to SEQ ID NO: 3.

Applicants respectfully submit that Claims 13-15 of the present application are very similar to Example 14 of the Guidelines. Like the Example, the variants recited in Claims 13-15 do not have substantial variation from SEQ ID NO: 1 because they are at least 70%, 80%, or 90% identical to SEQ ID NO: 1 and, like SEQ ID NO: 1, encode a protein having the activity of the RodA cell division protein. Therefore, one skilled in the art would conclude that Applicants were in possession of the claimed invention. Accordingly, the written description requirement is satisfied.

Based on the foregoing, the claims satisfy the requirements of 35 U.S.C. §112, first paragraph. Accordingly, withdrawal of these grounds of rejection is respectfully requested.

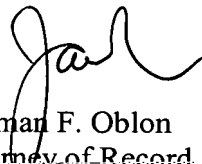
Regarding the Restriction Requirement, non-elected Claims 7-9, 23-25, and 38-47 are method/process claims which depend from the elected claims. Since the elected claims are allowable for the reasons discussed above, those non-elected claims must be rejoined under the provisions of MPEP §821.04.

An Information Disclosure Statements was filed in the present application on February 11, 2002. An acknowledgment that the cited references were considered is respectfully requested in the next communication from the Office.

Applicants submit that the present application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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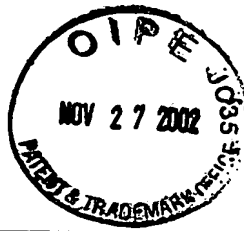


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HEREWITH

IN THE CLAIMS

Claims 2 and 18 (Cancelled).

Please amend the claims as follows.

- 5. (Amended) The host cell of Claim 4, which is a coryneform [*Coryneform*] bacterium.
6. (Amended) The host cell of Claim 4, wherein said host cell is selected from the group consisting of *Corynebacterium* [*Coryneform*] *glutamicum*, *Corynebacterium acetoglutamicum*, *Corynebacterium acetoacidophilum*, *Corynebacterium melassecola*, *Corynebacterium thermoaminogenes*, *Brevibacterium flavum*, *Brevibacterium lactofermentum*, and *Brevibacterium divaricatum*.
13. (Amended) An isolated polynucleotide, which is at least 70% identical to the polynucleotide of Claim 11 and encodes a protein which has the activity of the RodA cell division protein.
14. (Amended) An isolated polynucleotide, which is at least 80% identical to the polynucleotide of Claim 11 and encodes a protein which has the activity of the RodA cell division protein.
15. (Amended) An isolated polynucleotide, which is at least 90% identical to the polynucleotide of Claim 11 and encodes a protein which has the activity of the RodA cell division protein.

21. (Amended) The host cell of Claim 20, which is a coryneform [*Coryneform*] bacterium.

22. (Amended) The host cell of Claim 20, wherein said host cell is selected from the group consisting of Corynebacterium [*Coryneform*] *glutamicum*, *Corynebacterium acetoglutamicum*, *Corynebacterium acetoacidophilum*, *Corynebacterium melassecola*, *Corynebacterium thermoaminogenes*, *Brevibacterium flavum*, *Brevibacterium lactofermentum*, and *Brevibacterium divaricatum*.

39. (Amended) The process of Claim 38, wherein said host cell is a coryneform [*Coryneform*] bacterium or *Brevibacterium*.

44. (Amended) The process of Claim 43, wherein said host cell is a coryneform [*Coryneform*] bacterium or *Brevibacterium*.--

#### **Example 14: Product by Function**

**Specification:** The specification exemplifies a protein isolated from liver that catalyzes the reaction of  $A \longrightarrow B$ . The isolated protein was sequenced and was determined to have the sequence as set forth in SEQ ID NO: 3. The specification also contemplates but does not exemplify variants of the protein wherein the variant can have any or all of the following: substitutions, deletions, insertions and additions. The specification indicates that procedures for making proteins with substitutions, deletions, insertions and additions is routine in the art and provides an assay for detecting the catalytic activity of the protein.

#### **Claim:**

A protein having SEQ ID NO: 3 and variants thereof that are at least 95% identical to SEQ ID NO: 3 and catalyze the reaction of  $A \longrightarrow B$ .

#### **Analysis:**

A review of the full content of the specification indicates that a protein having SEQ ID NO: 3 or variants having 95% identity to SEQ ID NO: 3 and having catalytic activity are essential to the operation of the claimed invention. The procedures for making variants of SEQ ID NO: 3 are conventional in the art and an assay is described which will identify other proteins having the claimed catalytic activity. Moreover, procedures for making variants of SEQ ID NO: 3 which have 95% identity to SEQ ID NO: 3 and retain its activity are conventional in the art.

A review of the claim indicates that variants of SEQ ID NO: 3 include but are not limited to those variants of SEQ ID NO: 3 with substitutions, deletions, insertions and additions; but all variants must possess the specified catalytic activity and must have at least 95% identity to the SEQ ID NO: 3. Additionally, the claim is drawn to a protein which comprises SEQ ID NO: 3 or a variant thereof that has 95% identity to SEQ ID NO: 3. In other words, the protein claimed may be larger than SEQ ID NO: 3 or its variant with 95% identity to SEQ ID NO: 3. It should be noted that "having" is open language, equivalent to "comprising".

The claim has two different generic embodiments, the first being a protein which comprises SEQ ID NO: 3 and the second being variants of SEQ ID NO: 3. There is a single species disclosed, that species being SEQ ID NO: 3.

A search of the prior art indicates that SEQ ID NO: 3 is novel and unobvious.

There is actual reduction to practice of the single disclosed species. The specification indicates that the genus of proteins that must be variants of SEQ ID NO: 3 does not have substantial variation since all of the variants must possess the specified catalytic activity and must have at least 95% identity to the reference sequence, SEQ ID NO: 3. The single species disclosed is representative of the genus because all members have at least 95% structural identity with the reference compound and because of the presence of an assay which applicant provided for identifying all of the at least 95% identical variants of SEQ ID NO: 3 which are capable of the specified catalytic activity. One of skill in the art would conclude that

applicant was in possession of the necessary common attributes possessed by the members of the genus.

**Conclusion:** The disclosure meets the requirements of 35 USC §112 first paragraph as providing adequate written description for the claimed invention.